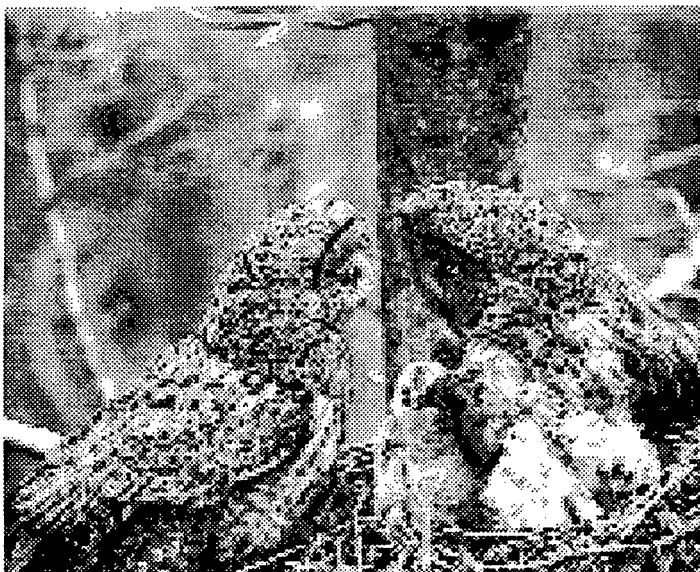


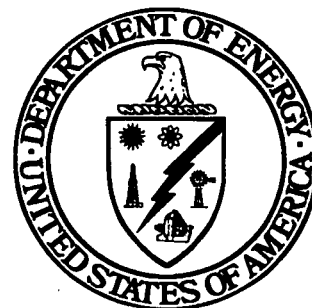


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Environmental Restoration Program



**Monthly
Report for
November 1993**



Rocky Flats Office

December 20, 1993

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

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EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR NOVEMBER 1993

Copies of the preliminary Operable Unit (OU) 1 Final Phase III Resource Conservation and Recover Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) Report were delivered to the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH). The regulatory agencies indicated that they may accept the preliminary report as the Final Report. Because of the stop work order, the scheduled Interagency Agreement (IAG) Table 6 milestone for the Final Phase III RFI/RI Report was rescheduled from November 15, 1993, to March 30, 1994.

DOE received all of the data concerning the additional samples at the OU 2 Surface Water (SW) Station SW-132. The Final OU 2 SW Interim Measure/Interim Remedial Action (IM/IRA) Treatability Study Report (TSR) will be completed after comments are received from the agencies on the Draft report. The sampling plan is being revised for the SW IM/IRA.

The OU 2 Subsurface IRA Soil Vapor Survey field work, including the field report, is on schedule to be completed by December 2, 1993. All of the IHSSs were sampled and the data was analyzed. Surveying of the sampling locations was arranged and is scheduled to be completed by December 3, 1993. The Final Baseline Soil Vapor Surveys (SVS) and Detailed SVS Report will be combined into one report that is scheduled to be completed by February 14, 1994.

In support of the OU 4 Phase I RFI/RI Work Plan implementation, vertical drilling in Pond 207 B North and sealing activities, necessary to restore liner integrity and final surveying, were completed in November 1993. Drilling operations in Pond 207 B Center were completed on November 24, 1993.

Solar Ponds closure and Phase I remediation is currently being planned in an IM/IRA Decision Document (DD). Weekly meetings were held with the regulators to obtain early input on issues such as contaminants of concern (COCs), applicable or relevant and appropriate requirements (ARARs), and hot spot remediation. This interactive approach to developing the DD is necessary to meet the obligations from the September 1993 OU 4 dispute resolution.

Prior to closing the Solar Ponds, the wastes currently stored in the ponds will be moved to a new tank farm in tents on the 750 Storage Pad. The poly tank procurement continues. The first tanks will arrive on plant site in December 1993. The design for relocating the tent heaters and the tank layout design was completed. The relocation of the tent heaters in Tent 3 was completed, and the relocation of the tent heaters for Tent 4 is under way. All activities required to receive tanks in Tent 3 were completed. The Heater/Soaker Relocation Statement of Work was approved for construction to allow for operations to continue through the winter.

DOE, Rocky Flats Plant

DOE was briefed on all operations and technical risk considerations related to the use of the vacuum truck service to remove sludge from the Solar Ponds. On November 10, 1993, authorization was given to proceed with the vacuum truck sludge transport option. The goal is to have the vacuum trucks in operation emptying the Pond 207 B South by the end of December 1993. RFP Construction completed the placement of gravel to upgrade the road near the Pond 207 B South to accommodate the vacuum trucks. Operations can not begin until CDH approves the requested change to interim status for this storage. Approval must be received by December 17, 1993, to meet the schedule goal.

Negotiations with CDH and EPA continue, relative to streamlining the IAG schedule for OU 7 by integrating the IM/IRA process with Phase I and II assessments. This will eliminate the Phase I RFI/RI Report and Phase II RFI/RI Work Plan and Report. The regulatory agencies support this effort. The modification to the subcontract supporting the IM/IRA is under way, and the subcontract modification is projected to be awarded prior to the end of December 1993.

A preferred alternative was announced to address OU 16. The preferred remedy for the soils is the "No Action" alternative for individual hazardous substance sites (IHSSs) 185, 192, 193, 194, 195 within OU 16. These hazardous sites currently present no risk to human health and the environment. Past cleanup actions or natural processes have eliminated the hazardous substances. However, previous cleanup actions and natural processes may not have eliminated the hazardous substances for IHSSs 196 and 197 within OU 16. Therefore, IHSSs 196 and 197 will be transferred for further investigation into OU 5 and OU 13, respectively. A public comment period will be held concurrently for both the Proposed Plan and the Draft Permit Modification. The comment period will be from November 8, 1993, to January 7, 1994. A public hearing will be held on December 8, 1993.

The Surface Water Management Pond Water IM/IRA Decision Document (DD) (Volumes I and II) was delivered to the regulatory agencies on November 22, 1993.

IAG Performance Indicators for Monthly Report

<u>Number of IAG Table Six Milestones</u>	<u>FY94 YTD (10/1/93 - 11/30/93)</u>	<u>Since IAG Inception</u>
Scheduled (including approved extensions)	4	102
Met	0	88
Extensions Granted	0	27
Extensions Denied	0	2
Remaining this FY94 (to 9/30/94)	38	n/a
Added	0	5
Deleted	1	5

<u>Deliverable in Review by Regulators</u>	<u>Project</u>	<u>Date Submitted</u>
	OU 14 Final Phase I RFI/RI Work Plan	

<u>Field Work Currently Under Way</u>	<u>Project</u>	<u>Scheduled Complete</u>
Please note: these dates reflect scheduled field work and completed field work.	OU 2	08 Oct 93
	OU 3	13 Jul 93
	OU 4	Jan 96 ^a
	OU 7	30 Apr 93
	OU 8	16 Sep 94
	OU 9	18 Aug 94
	OU 10	15 Aug 94
	OU 12	05 Sep 94
	OU 13	17 Feb 95
	OU 14	11 May 95
	OU 15	12 Nov 93

^a for field work Phases I and II

<u>IM/IRA Status</u>	<u>Gallons Treated</u>
OU 1 881 Hillside Treatment	1,643,159 gallons
OU 2 903 Pad Water Treatment	19,346,180 gallons
OU 4 Water Management Tasks	Project is in operations phase

<u>IAG Document Deliverables Due Next 6 months</u>	<u>Due Date</u>	<u>Expected Date</u>
OU 1 Draft CMS/FS Report	11 Feb 94	31 Mar 94 *
OU 1 Final Phase III RFI/RI Report	15 Nov 93	15 Nov 93 *
OU 1 Final Proposed Plan	04 Jan 94	17 May 95 *
OU 2 Draft CMS/FS Report	04 Nov 93	17 Oct 96 *
OU 3 Draft Phase I RFI/RI Report	14 Feb 94	02 Nov 93*
OU 4 Draft Phase I Proposed IM/IRA Decision Document (DD)	14 Apr 94	14 Apr 94
OU 4 Draft Phase II RFI/RI Work Plan	22 Apr 94	22 Apr 94
OU 5 Draft Phase I RFI/RI Report	30 Nov 93	09 Feb 95 *
OU 7 Final Phase I RFI/RI Report	16 Mar 94	02 Sep 94*
OU 8 Draft Phase I RFI/RI Report	14 Feb 94	12 Nov 15
OU 9 Draft Phase I RFI/RI Report	11 Apr 94	04 Jan 01
OU 12 Draft Phase I RFI/RI Report	20 Apr 94	11 Mar 99

<u>Overdue Deliverables</u>	<u>Due Date</u>	<u>Expected Date</u>
OU 1 Draft Proposed Plan	27 Sep 93	30 Sep 94 *
OU 1 Final Phase III RFI/RI Report	15 Nov 93	04 Mar 94 *
OU 2 Draft Phase II RFI/RI Report ^a	12 Mar 93	16 Dec 93 *
OU 2 Final Phase II RFI/RI Report	09 Aug 93	23 May 94 *
OU 2 Draft CMS/FS Report	04 Nov 93	17 Oct 96 *
OU 7 Draft Phase I RFI/RI Report	12 Oct 93	21 Jun 94 *

* TBD because of HHRA issues work stoppage.

^a Partial delivery, because of the HHRA issues work stoppage.

PROBLEMS AND PROGRAMMATIC ISSUES

Several changes to Interim Status for OU 4 Solar Ponds storage areas are necessary to support IAG activities. Two of the changes are crucial to the OU 4 schedules: (1) CDH's approval for storage of the pond sludge in tanks on the 750 Pad is on the critical path to meeting DOE's schedule challenge for emptying the ponds. Delay in receiving CDH's approval would result in missing the DOE challenge date. (2) CDH approval is needed to store drill cuttings, which were generated by field investigation work in the 207 B ponds. The drill cuttings are currently stored in a 90-day area. At the end of November 1993, there are 65 days before the 90-day storage limit expires.

A stop work directive was received from the regulatory agencies in August 1993 on sections of the baseline risk assessment. Initially, this stop work directive affected OUs 1 through 7. In October 1993, OU 1 was specifically exempt from the new, proposed methodology for data aggregation in future risk assessments; the OU 2 determination of COCs was partially lifted. OUs 3, 5, 6 and 7 are still affected by the stop work directive. A meeting was held between DOE and EG&G to discuss data aggregation, the number of risk assessments per OU, and other risk assessment issues.

Completion of the Operational Readiness Review (ORR) is delaying the initiation of surficial soil sampling in OU 10. All field work for OU 10 was suspended until comments on the IA HSP are resolved. Field work is now scheduled to begin December 8, 1993.

A resolution of what organization is responsible for the removal of materials from the IHSSs continues to be discussed. Until this issue is resolved, no efforts will be made to begin work on removing all materials found in or around IHSSs 170/174 and 176. However, work will proceed in areas where material storage will not adversely affect data collection activities. Characterization and assessment of IHSSs in OUs 9, 10, and 15 represent significant problems until materials stored in the IHSSs are removed so the IHSSs can be addressed.

NEAR-TERM IAG TABLE SIX MILESTONES

<u>OU#</u>	<u>IAG</u> <u>Milestone Description</u>	<u>Date Scheduled</u> <u>to EPA/CDH</u>	<u>Status</u>
2 ^a	Submit Draft Phase II RFI/RI Report	12 Mar 93	Extension denied(delinquent)
2 ^a	Submit Final Phase II RFI/RI Report	9 Aug 93	Extension denied(delinquent)
1	Submit Draft Proposed Plan	27 Sep 93	Extension request submitted
7 ^a	Submit Draft Phase I RFI/RI Report	12 Oct 93	*
2 ^a	Submit Draft CMS/FS Report	04 Nov 93	*
1	Submit Final Phase III RFI/RI Report	15 Nov 93	Extended from 04 Jan 93
5 ^a	Submit Draft Phase I RFI/RI Report	30 Nov 93	*
1	Submit Final Proposed Plan	04 Jan 94	Extension request submitted
1	Submit Draft CMS/FS Report	11 Feb 94	Extended from 31 Mar 93
3 ^a	Submit Draft Phase I RFI/RI Report	14 Feb 94	Extended from 16 Jul 93
8	Submit Draft Phase I RFI/RI Report	14 Feb 94	*
7 ^a	Submit Final Phase I RFI/RI Report	16 Mar 94	*
9	Submit Final Phase I RFI/RI Report	11 Apr 94	*
4	Submit Draft Phase I Proposed IM/IRA Decision Document	14 Apr 94	On schedule
12	Submit Draft Phase I RFI/RI Report	20 Apr 94	*
4	Submit Draft Phase II Work Plan	22 Apr 94	On schedule
5 ^a	Submit Final Phase I RFI/RI Report	03 May 94	Extension request submitted
1	Submit Draft Responsiveness Summary	06 May 94	*
2 ^a	Submit Final CMS/FS Report	10 May 94	*
2 ^a	Submit Draft Proposed Plan	10 May 94	*
6 ^a	Submit Draft Phase I RFI/RI Report	10 Jun 94	Extended from 4 Aug 93
4	Submit Final Phase I Proposed IM/IRA Decision Document	24 Jun 94	On schedule
8	Submit Final Phase I RFI/RI Report	12 Jul 94	*
15	Submit Draft Phase I RFI/RI Report	01 Aug 94	On schedule
1	Submit Final CMS/FS Report	03 Aug 94	*
1	Submit Final Responsiveness Summary	03 Aug 94	*
1	Submit Draft CAD/ROD	03 Aug 94	*
13	Submit Draft Phase I RFI/RI Report	08 Aug 94	*
2 ^a	Submit Final Proposed Plan	09 Aug 94	*
10	Submit Draft Phase I RFI/RI Report	25 Aug 94	*
9	Submit Final Phase I RFI/RI Report	06 Sep 94	*
7 ^a	Submit Draft Phase II RFI/RI Work Plan	13 Sep 94	*
12	Submit Final Phase I RFI/RI Report	15 Sep 94	*
4	Submit Final Phase II RFI/RI Work Plan	19 Sep 94	On schedule
11	Submit Draft Phase I RFI/RI Report	20 Sep 94	*
3 ^a	Submit Final Phase I RFI/RI Report	21 Oct 94	Extended from 13 Dec 93
1	Submit Final CAD/ROD	01 Nov 94	*
1	Submit CD/RD Work Plan	01 Nov 94	*
7 ^a	Submit Draft Phase I Proposed IM/IRA DD	01 Nov 94	*
6 ^a	Submit Final Phase I RFI/RI Report	18 Nov 94	Extended from 07 Jan 94
2 ^a	Submit Responsiveness Summary	13 Dec 94	*
14	Submit Draft Phase I RFI/RI Report	20 Dec 94	*

* Behind original IAG schedule; extension required.

^a OU 2 through OU 7 may require additional extensions because of HHRA issues work stoppage.

SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for November 1993. This program implements the Interagency Agreement (IAG) among the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

The Executive Summary of the report highlights significant achievements, summarizes milestone information, and presents any major unresolved issues of the program. Technical progress, schedule status, and milestone status for each Operable Unit (OU) as well as other program activities are presented in Section 2. Section 3. contains the schedules for routine environmental sampling as required by Paragraph 210 of the Interagency Agreement. Section 4. contains a list that identifies the contractors and subcontractors performing work on the program as required by Paragraph 13 of the IAG.

SECTION 2. PROJECT STATUS

2.1 OU 1 - 881 HILLSIDE AREA

The alluvial ground water at the 881 Hillside Area, located north of Woman Creek in the southeast section of Rocky Flats Plant (RFP), was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is approximately 2 miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSS) that make up OU 1 were being investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface ground water and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface ground water flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, tested and released onsite into the South Interceptor Ditch (SID) along Woman Creek. Water collected from this ditch undergoes a secondary analysis prior to release. IRA construction was completed in April 1992. The Remedial Investigation and Feasibility Study (RI/FS) to determine the final remedial action are continuing in parallel with operation of the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
	Submit Final Phase III RFI/RI Work Plan	31 Oct 90
	Submit Draft Phase III RFI/RI Report	28 Oct 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Final Phase III RFI/RI Report	04 Jan 93	15 Nov 93	30 Mar 94
Submit Draft CMS/FS Report	31 Mar 93	11 Feb 94	06 Aug 94
Submit Final CMS/FS Report	27 Sep 93	03 Aug 94	02 Feb 94
Submit Draft PP	27 Sep 93	Pending	02 Feb 95
Submit Final PP	04 Jan 94		12 May 95
Submit Draft Responsiveness Summary	06 May 94		11 Sep 95
Submit Final Responsiveness Summary	03 Aug 94		09 Dec 95
Submit Draft CAD/ROD	03 Aug 94		09 Dec 95
Submit Final CAD/ROD	01 Nov 94		08 Mar 96
Submit Draft Title II Design	05 Jul 95		09 Nov 96

DOE, Rocky Flats Plant

**November Work Activity
Status**

Remedial Investigation (RI) - Copies of the preliminary Phase III Resource Conservation and Recover Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) Report were delivered to the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH). The regulatory agencies responded favorably to Sections 1, 2, and 3 of the Final Phase III RFI/RI Report. The regulatory agencies have indicated that they may accept the preliminary report as the Final Report. Because of the stop work order, the scheduled Table 6 Interagency Agreement (IAG) milestone for the Final Phase III RFI/RI Report was rescheduled from November 15, 1993, to March 30, 1994.

On November 23, 1993, the Department of Energy (DOE) presented the field investigation plan for evaluating the suitability of the dense non-aqueous phase liquids (DNAPL) site at individual hazardous substance site (IHSS) 119.1 for six-phase ohmic soil heating and vapor extraction to RFP personnel. Maps of the proposed soil gas sampling were presented, and administrative concerns were discussed and resolved.

Feasibility Study/Corrective Measures Study (FS/CMS) - The possibility of initiating FS work on analyzing alternatives for surficial soils was discussed with the subcontractor. Since it is not anticipated that the status of OU 1 surface soils will change as a result of the Final Phase III RFI/RI Report, the scope can move forward.

Many portions of the FS/CMS, such as final Technical Memorandum (TM) #10, *PRG*, and draft TM # 11, *Alternatives Array*, are contingent upon the final results of the Phase III RFI/RI Report.

Technical Memoranda

Project

OU 1 881 Hillside

TM #10

TM Title

TM Status

Preliminary Remediation Goals

Submitted Draft TM to DOE: Feb 93

DOE comments were completed for Appendix A of TM 10: May 93.

When preparation was concluded or is estimated to be concluded: 15 Aug 93

Projected date of submittal to EPA/CDH: TBD

Actual date of submittal: N/A

Date when comments were received: N/A

TM #11
TM Title
TM Status

Alternative Array
Submitted Draft TM to DOE: 21 Oct 93 - Delayed by stop work order.
When preparation is concluded or is estimated to be concluded:
Projected date of submittal to EPA/CDH: TBD
Actual date of submittal: N/A
Date when comments were received: N/A

Planned Work for December

- Continue work on the FS.
- Conduct a series of meetings to present the Final Phase III RFI/RI Report to the regulatory agencies.

Problems

None

Open Items

Many portions of the FS/CMS, such as Technical Memorandum (TM) #10, *Preliminary Remediation Goals (PRG)*, and TM # 11, *Alternatives Array*, are contingent upon the final results of the Phase III RFI/RI Report.

2.1.2 OU 1 REMEDIATION

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91

DOE, Rocky Flats Plant

Complete IM/IRA Construction (891 treatment building)	02 Mar 92
Complete IM/IRA Construction (French drain)	13 Apr 92

**Future IAG Milestones
Through FY95**

None

**November Work Activity
Status**

On November 15, 1993, DOE received a working draft of the Evaluation of 881 Footing Drain, OU 1 for Discontinuation of Collection and Treatment. This draft pointed out a number of data gaps that must be filled to complete this report. It also identified computational inconsistencies in the Preliminary Risk Assessment Section, which must also be reconciled. Research into filling the data gaps is under way, and will be immediately followed by revisions to the risk calculations.

Results from the Tank 206 radiochemistry samples were also received. Results on effluent Tank 206 for both general chemistry and radiochemistry indicate that the water is acceptable for discharge.

One batch of water in the Tank 210 neutralization tank was found to have an abnormally high specific gravity. The water caused reduced pump discharge capacity, making it more difficult to neutralize the water. A sample of this water was taken, and the tank was successfully neutralized after some additional effort.

Treated ground water this month:	102,000 gallons
Total treated water:	1,695,193 gallons

**Planned Work for
December**

- Begin installation of the gas chromatograph.
- Continue routine collection and treatment of ground water.

Problems

A shortage of chlorine in the U.S. has resulted in a shortage of hydrochloric acid. Enough acid was obtained to last 3 or 4 months. However, should this shortage continue, impacts to future operations might be experienced. Hydrochloric acid is needed to regenerate ion columns 2 and 3 which remove totally dissolved solids (TSD), hardness, alkalinity and metals.

Open Items

None

2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent; some may have contaminants that were not removed by the treatment system.

An Interim Measure/Interim Remedial Action (IM/IRA) provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process is evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI and FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Subsurface Investigation Interim Measure/Interim Remedial Action Plan/Environmental Assessment (IM/IRA/EA) is north of Woman Creek and encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRA evaluates a remedial technology actions for removal of residual free-phase Volatile Organic Compound (VOC) contamination from three distinct subsurface environments at OU 2. Each of the VOC-removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial actions for the collection of information will aid in the selection and design of final remedial actions that address subsurface, residual free-phase VOC contamination at OU 2.

2.2.1 OU 2 ASSESSMENT

Scope of Work Changes This Period	None
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Technical Approach Changes This Period	None
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IAG Milestone Accomplishments	Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
	Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
	Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
	Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91

DOE, Rocky Flats Plant

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase II RFI/RI Report	12 Mar 93	Denied	16 Dec 93*
Submit Final Phase II RFI/RI Report	09 Aug 93	Denied	23 May 94*
Submit Draft CMS/FS Report	04 Nov 93		17 Oct 96*
Submit Final CMS/FS Report	10 May 94		26 Jun 97*
Submit Draft PP	10 May 94		26 Jun 97*
Submit Final PP	09 Aug 94		13 Jan 98*
Submit Responsiveness Summary	13 Dec 94		30 Jun 98*
Submit Draft CAD/ROD	16 Mar 95		02 Dec 98*
Submit Final Responsive Summary	16 Mar 95		02 Dec 98*
Submit Final CAD/ROD	15 Jun 95		10 Aug 99*

*TBD due to HHRA issues work stoppage.

November Work Activity Status

The first three chapters of the Phase II RFI/RI Report were reviewed by DOE. Three chapters will be submitted to the regulatory agencies after revisions are completed. DOE is currently reviewing chapters four and five.

A meeting was held to discuss data aggregation, the number of risk assessments per OU, and other risk assessment issues. DOE's position is to work out an agreement on risk assessment methodology with EPA then present the methodology to CDH.

Technical Memoranda

Project

OU 2-903 Pad, Mound, and East Trenches

TM#5

TM Title

TM Status

Exposure Scenarios

When preparation is concluded or is estimated to be concluded: 15 Jan 93

Projected date of submittal to EPA/CDH: 15 Jan 93

Actual date of submittal: 15 Jan 93

Date when comments were received: 11 Feb 93 EPA,
12 Mar 93 CDH

TM#6

TM Title

TM Status

Modeling

When preparation is concluded or is estimated to be concluded: 15 Jan 93

Projected date of submittal to EPA/CDH: 15 Jan 93

Actual date of submittal: 15 Jan 93

Date when comments were received: 01 Apr 93 EPA,
31 Mar 93 CDH

TM#7	
TM Title	Surficial Soils
TM Status	When preparation is concluded or is estimated to be concluded: 07 Jan 93 Projected date of submittal to EPA/CDH: 07 Jan 93 Actual date of submittal: 12 Jan 93 Date when comments were received: 21 Jan 93 TM Approved
TM#8	
TM Title	Bedrock
TM Status	When preparation is concluded or is estimated to be concluded: 15 Mar 93 Projected date of submittal to EPA/CDH: 01 Mar 93 Actual date of submittal: 15 Mar 93 Date when comments were received: 14 Apr 93 EPA, 14 Apr 93 CDH
TM#8 Addendum	
TM Title	Contingency Plan for revised Phase II RFI/RI Work Plan (Bedrock)
TM Status	When preparation is concluded or is estimated to be concluded: Projected date of submittal to EPA/CDH: None Actual date of submittal: Date when comments are received:
TM #9	
TM Title	Chemicals of Concern
TM Status	When preparation is concluded or is estimate to be concluded: 24 Aug 93 Projected date of submittal to EPA/CDH: Unknown due to work stoppage Actual date of submittal: Date when comments are received:
TM #10	
TM Title	Toxicity Assessment
TM Status	When preparation is concluded or is estimated to be concluded: 24 Aug 93 Projected date of submittal to EPA/CDH: Unknown due to work stoppage Actual date of submittal: Date when comments are received:

DOE, Rocky Flats Plant

Planned Work for December

- Continue Soil Vapor Extraction.
- Continue FS.
- Continue Surface Water IM/IRA.
- Continue RI Report.

Problems

None

Open Items

The regulatory agencies are working to arrive at a compromise approach to the Human Health Risk Assessment (HHRA) work stop order issue of data aggregation.

2.2.2 OU 2 REMEDIATION

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	03 May 91
Submit Draft Treatability Test Report (Phase I GAC)	01 Apr 92
Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92
Begin Field Treatability Testing (radionuclides removal system)	27 Apr 92
Submit Final Treatability Test Report (Phase I GAC)	02 Jun 92
Submit Subsurface Site I Draft Test Plan	29 Oct 92
Submit Subsurface Site I Final Test Plan	12 Jan 93

Project Status

Submit Subsurface Site 2 Draft Test Report	24 Jun 93
Submit Draft Surface Water Field Treatability Report	13 Jul 93

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Final Phase II Treatability Study Report	13 Jul 93	8 Sep 93	8 Sep 93

November Work Activity Status

Subsurface Water (SW) IM/IRA - The soil vapor survey field work, including the field report, will be completed by December 2, 1993. All of the IHSSs were sampled and the data was analyzed. Surveying of the sampling locations was arranged and will be completed by December 3, 1993. The Final Baseline Soil Vapor Surveys (SVS) and Detailed SVS (addendum) Report will be combined into one report that is scheduled to be completed by February 14, 1994.

Surface Water (SW) IM/IRA - DOE has received all of the data concerning the additional samples at Surface Water (SW) Station SW-132. The Final SW IM/IRA Treatability Study Report (TSR) will be completed after comments are received from the agencies on the Draft report. The sampling plan is being revised for the SW IM/IRA.

After a series of malfunctions, the FTU became operational on November 18, 1993.

On November 15, 1993, during normal plant operations, one of the blank membranes ruptured in the micro-filtration unit. The rupture appears to have been caused from a material defect. Operations were shut down as soon as the rupture occurred. All of the spilled water was contained in the secondary containment.

New equipment at the 881 Laboratory will be utilized to analyze total uranium. Duplicate samples will be analyzed in order to compare results using standard methods and the new uranium analyzer at the 881 Laboratory. Two advantages of using the new uranium analyzer are cost effectiveness and time savings.

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Efforts are under way to have all activities at the FTU covered by Standard Operation Procedures (SOPs). All SOPs were put into draft forms, and will be ready for use by the end of November 1993. Normal plant operations are now covered under SOPs.

Treated surface water this month: 460,538 gallons
Total treated water: 19,346,180 gallons

Planned Work for December

Subsurface IRA Program

- Continue work on the SVE Test 1.

Surface IRA Program

- Continue work on the sampling plan.
- Continue treating water at the OU FTU.

Problems

The FTU continues to operate intermittently.

Open Items

The Final SW IM/IRA TSR is pending completion until regulatory agency comments are received.

2.3 OU 3 OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay vs. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Past Remedy Report	26 Oct 90
	Submit Draft Historical Information/ Preliminary Health Risk Assessment Report	09 Nov 90
	Submit Final Past Remedy Report	02 Apr 91
	Submit Final Historical Information/ Preliminary Health Risk Assessment Report	16 Apr 91
	Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
	Submit Final Phase I RFI/RI Work Plan	06 Dec 91

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	16 Jul 93	14 Feb 94	14 Feb 94*
Submit Final Phase I RFI/RI Report	13 Dec 93	21 Oct 94	21 Oct 94*

*TBD due to HHRA issue work stoppage.

November Work Activity Status Letters are being written to inform offsite landowners of the laboratory analysis results of soil samples obtained from their property. Only validated data will be sent to the landowners, thus letters will be sent as this data becomes available.

RFP authorized work to start on Modification #7 of the subcontract to support work on the Draft and Final Phase I RFI/RI Reports. This modification provides resources needed to adjust the contract following the approval of the schedule extension for the RI Reports.

A stop work directive was received from the regulatory agencies in August 1993 on sections of the baseline risk assessment. This stop work order allowed the parties to the IAG time to evaluate the Gilbert proposal for identifying contaminants of concern (COCs). This issue was resolved. The second issue under the stop work order is the method of data aggregation. Data aggregation for the Human Health Risk Assessment (HHRA) has different requirements under the CERCLA and RCRA. The OU 3 work stoppage on issues related to the baseline risk assessment continues. A meeting was held between DOE and RFP regarding the proposal for the data aggregation issue. The proposal was discussed and revisions are being made. The proposal will then be presented to EPA and CDH in an attempt to resolve the current impasse over the data aggregation issue.

DOE received correspondence proposing a series of FS planning meetings with the regulatory agencies. The FS is a new phase of the regulatory process that OUs 1, 2, 3, and 6 are just beginning. To avoid the problems experienced during the RI phase, an FS Planning Agreement to obtain a common understanding of the process will be very valuable.

Technical Memoranda

Project

OU 3-Offsite Areas

TM#1
TM Title
TM Status

Field Changes to RFI/RI Work Plan
When preparation is concluded or is estimated to be concluded: 10 May 93
Projected date of submittal to EPA/CDH: 10 May 93
Actual date of submittal: 23 Apr 93

TM#2
TM Title
TM Status

Exposure Scenarios for the HHRA
When preparation is concluded or is estimated to be concluded: 12 May 93
Projected date of submittal to EPA/CDH: 12 May 93
Actual date of submittal: 03 May 93
Date when comments were received: 15 Jul 93

TM#3**TM Title****TM Status**

Modeling

When preparation is concluded or is estimated to be concluded: 29 Sep 93

Projected date of submittal to EPA/CDH: TBD

Actual date of submittal: N/A

Date when comments were received: N/A

TM# 4**TM Title****TM Status**

Contaminants of Concern (currently under a work stoppage)

When preparation is concluded or is estimated to be concluded: 18 Oct 93

Projected date of submittal to EPA/CDH: TBD

Actual date of submittal: N/A

Date when comments were received: N/A

Currently under a work stoppage

**Planned Work for
December**

- Award subcontract for air/meteorological monitoring stations.
- Begin scoping of OU 3 FS.

Problems

None

Open Items

The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation.

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is comprised of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C, which were constructed for treatment and storage of process water from industrial operations. The process water contained treated acidic wastes, industrial liquid wastes (e.g., metal plating solutions), and low-level radioactive wastes.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle contaminated ground water to the ponds and to minimize natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger interceptor trench system (ITS), which returned approximately 4 million gallons of ground water back into the solar evaporation ponds each year.

No additional process water has been pumped into the ponds since 1986. However, the ITS collected and returned ground water into the solar evaporation ponds until new storage tanks were completed and placed in operation in April 1993. The tanks allowed the RFP to stop placement of contaminated ground water into the ponds. This placement of water into the ponds had been occurring without meeting Land Disposal Restrictions and Minimum Technology Requirements of Resource Conservation and Recovery Act (RCRA). A new, dedicated Building 910 evaporation-treatment facility became operational in July 1993. This building supplements the plant's waste treatment facility in Building 374 to process the water stored in the modular tanks.

The Solar Evaporation Ponds Subproject has been comprised of four technical areas: (1) pond sludge processing by means of the Agreement in Principle between DOE and CDH; (2) a water management/treatment by means of the IM/IRA DD signed by EPA, CDH and DOE; (3) the OU 4 assessment and remedial action, per the IAG which identified the ponds as one of the sixteen OUs to be remediated at the RFP and superseded the 1988 Ponds-Closure Plan submitted by DOE to the regulators; and (4) pad operations and storage activities that are necessary to meet the plant's RCRA interim status and permit requirements with regards to storage of pond wastes. The water management and pond sludge clean-out are necessary precursors to OU 4 assessment and remediation, and pad operations are necessary support activities at least until the pond sludge waste is disposed. Revisions to these areas are being prepared in accordance with the recent dispute resolution for OU 4.

Work in these four areas was planned to close the ponds and remediate OU 4. The work was scoped to (1) remove water from the ponds, (2) provide a treatment facility to replace the ponds as evaporation-treatment and storage units for pond-related contaminated ground water, (3) remove and dispose of pond sludge in compliance with all regulations such as the Land Disposal Restrictions of RCRA, (4) assess the nature and extent of contamination at the ponds; (5) complete a RCRA closure of the impoundments; and (6) remediate the ponds as needed.

The April 1992 IM/IRA was developed as a regulatory agency requirement not included in the scope outlined in the IAG. DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and ground water collected by the ITS, but the regulatory agencies rejected permit modification and required development of an IM/IRA to

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document operation and use of the proposed water treatment system and provide the permitting mechanism for the system. The development and implementation of this IM/IRA preceded and overlapped the IAG scheduled Phase I RFI/RI field work. All construction has been completed, and the IM/IRA treatment facility is now in operation.

2.4.1 OU 4 ASSESSMENT

Scope of Work Changes This Period

Project Work Plan revisions have begun to incorporate the results of the OU 4 dispute resolution, as outlined in the future milestone section. Budget changes to completely implement the revised scope were submitted to DOE/HQ.

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 90

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	21 May 93	N/A	Deleted
Submit Final Phase I RFI/RI Report	18 Oct 93	N/A	Deleted
Submit Draft Phase II RFI/RI Work Plan	22 Apr 94		22 Apr 94
Submit Final Phase II RFI/RI Work Plan	19 Sep 94		19 Sep 94

November Work Activity Status

Data evaluation and report development continues for the Phase I RFI/RI Report for inclusion in the IM/IRA Environmental Assessment (EA) DD.

Vertical drilling was completed on November 10, 1993, in Pond 207 B North in support of the Phase I RFI/RI Work Plan implementation. Sealing activities necessary to restore liner integrity and final surveying were completed on November 12, 1993. Drilling operations began in Pond 207 B Center on November 16, 1993; and were completed by November 24, 1993.

Meetings were held with the subcontractor to discuss, evaluate and interpret vadose zone data collected during the Phase I RFI/RI Program. Post-closure

monitoring techniques for RCRA subtitle C facilities were also discussed.

The preliminary presentations of data indicate that the extent of contamination is greater than expected. Levels of several COC that exceed their preliminary remediation goals (PRGs) appear to be present in both surficial and subsurface soils immediately north of the ponds. Validation of these indications is expected in December 1993.

Phase I Interim Measures/Interim Remedial Action Plan (IM/IRA) Program - Weekly progress meetings continue among the regulatory agencies, DOE and RFP. Topics of discussion include the following: COC, PRGs, preliminary presentation of physical extent of contamination and consolidation of alternative remedial technologies. A number of issues were resolved at the meetings. COCs were identified and the PRGs for each COC were determined. These meetings support both the OU 4 Assessment and OU 4 Remediation Work Breakdown Structure (WBS) elements.

Technical Memoranda

Project

TM #1
TM Title
TM Status

OU 4-Solar Evaporation Ponds

Vadose Zone Investigation
Draft submitted to EPA/CDH: 16 Nov 92
Comments received: 30 Nov 92
Conditional Approval: 30 Nov 92
Projected submittal of Final to EPA/CDH: 15 Dec 92
Actual submittal date of Final: 15 Dec 92
Submittal of TM 1 Vadose Zone Schedule: 19 May 93
EPA/CDH Final Approval of TM 1: 17 Jun 93

TM #2
TM Title
TM Status

Modification to Field Activities
Draft submitted to EPA/CDH: 18 Mar 93
Comments received: 07 May 93
Projected submittal of Final to EPA/CDH: 07 Jun 93
Actual submittal date of Final: 09 Jun 93
EPA/CDH Final Approval of TM 2: 30 Jun 93

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TM #3	Environmental Evaluation
TM Title	Draft submitted to EPA/CDH: 19 Mar 93
TM Status	Comments received: EPA 21 Apr 93, CDH 02 Jun 93
	Projected submittal of Final to EPA/CDH: 30 Apr 93
	Actual submittal date of Final: 02 Jul 93
	EPA/CDH Final Approval of TM 3: 30 Jul 93
TM #4	Human Health Risk Assessment Exposure Scenarios
TM Title	Draft submitted to EPA/CDH: 19 Mar 93
TM Status	Comments received: EPA 21 Apr 93, CDH 23 Apr 93
	Projected submittal of Final to EPA/CDH: 11 Jun 93
	Actual submittal date of Final: 11 Jun 93
	Received stop work order: 24 Aug 93
TM #5	Exposure Models
TM Title	Projected submittal of Draft to EPA/CDH: 01 Aug 93
TM Status	Actual submittal of Draft : 24 Jun 93
	Projected submittal of Final to EPA/CDH: 15 Oct 93
	Received stop work order: 24 Aug 93
TM #6	Contaminants of Concern
TM Title	Projected submittal of Draft to EPA/CDH: 09 Nov 93
TM Status	Projected submittal of Final to EPA/CDH: 22 Dec 93
	Received stop work order: 24 Aug 93
TM #7	Toxicity Assessment
TM Title	Projected submittal of Draft to EPA/CDH: 04 Nov 93
TM Status	Projected submittal of Final to EPA/CDH: 22 Dec 93
	Received stop work order: 24 Aug 93
Planned Work for December	<ul style="list-style-type: none">• Development of the IM/IRA DD, which includes the RFI/RI data, will continue.
Problems	None
Open Items	Work continues on the approval of a baseline change proposal (BCP) for the streamlined OU 4 IM/IRA schedule and resources.
	Incorporation of the dispute resolution results into the project budget is pending DOE/HQ approval.

2.4.2 OU 4 REMEDIATION**Scope of Work Changes
This Period**

The project budget approval documents are being revised to incorporate scope changes to the IM/IRA DD committed to in the OU 4 dispute resolution. The revisions were submitted to DOE/HQ for approval.

**Technical Approach
Changes This Period**

Remediation is planned in two OU 4 cost account WBS elements. The technical approach for moving sludge from the ponds to 750 Pad was changed from a pipeline to vacuum trucks.

**IAG Milestone
Accomplishments**

None. The first IAG remediation milestone for this OU is the Draft Phase I Proposed IM/IRA DD scheduled for April 14, 1994.

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I Proposed IM/IRA Decision Document	14 Apr 94		14 Apr 94
Submit Final Phase I Proposed IM/IRA Decision Document	12 Sep 94	24 Jun 94	24 Jun 94
All Solar Ponds Emptied of Water and Sludge	new		20 Jan 95

**November Work Activity
Status**

Regulatory - An Action Description Memorandum (ADM) is nearing completion for the OU 4 Phase I remediation. DOE will determine the level of National Environmental Policy Act (NEPA) documentation required for the project. The planning baseline calls for an EA and Finding of No Significant Impact. Anticipated schedule acceleration of Building 788 is no longer compatible with the planned documentation schedule. This scheduling problem and potential work-arounds will be noted in the ADM transmittal.

Several changes to Interim Status for Solar Ponds storage areas are necessary to support OU 4 IAG activities. DOE is preparing to transmit the requests to CDH. Two of the changes are of crucial importance to OU 4 schedules. (1) CDH's approval for storage of the pond sludge in tanks on the 750 Pad is on the critical

path to meeting DOE's schedule challenge for emptying the ponds. While a large amount of information on the tank system was provided to CDH, an item-by-item response to the relevant regulations in 6 Code of Colorado Regulations (CCR) 1007-3 was requested. The RFP permitting staff are discussing the request with CDH to ensure that they understand what is needed, and a draft response is simultaneously being prepared. Delay in receiving CDH's approval would result in missing the DOE challenge date. (2) CDH approval is needed to store drill cuttings, which were generated by field investigation work in the 207 B ponds. The drill cuttings are currently stored in a 90-day area. While DOE formally transmitted a separate letter requesting this change, CDH has indicated it will wait for receipt of DOE's transmittal of the change to Interim Status request before taking action. To date, no problem with obtaining approval was identified. At the end of November 1993, there are 65 days before the 90-day storage limit expires.

A review, based on the subcontractor's estimate, began on the cost estimate for removal of liners from the Solar Ponds. This task is emerging as a key element in developing the IM/IRA and the project cost estimate. While a completely new cost estimate is to be generated in January 1994, based on the conceptual design that will be prepared, some information is required prior to that estimate.

Pond Sludge Status and Issues - The poly tank procurement continues. The first tanks will arrive on plant site in December 1993. The design for relocating the tent heaters and the tank layout design was completed. The relocation of the tent heaters in Tent 3 was completed, and the relocation of the tent heaters for Tent 4 is under way. All activities required to receive tanks in Tent 3 were completed. The Heater/Soaker Relocation SOW was approved for construction.

On November 8, 1993, DOE was briefed on all operations and technical risk considerations related to the use of the vacuum truck service to remove sludge from the Solar Ponds. On November 10, 1993, authorization was given to proceed with the vacuum truck sludge transport option. The vacuum truck services contract was awarded on November 24, 1993. Four bids were received, and the technical evaluation of these bids is under way. The goal is to have the vacuum truck in operation emptying the 207 B South Pond by December

1993. Construction completed the placement of gravel to upgrade the road near the 207 B South Pond to accommodate the vacuum trucks.

Water Management - The Building 910 evaporator operated intermittently during November 1993. ITS water was pumped to Building 910 and pumping from the solar ponds to Building 374 began. This action was taken in preparation for the upcoming accelerated sludge removal project (ASRP) activity of removing sludge with a vacuum truck. The valves on the B910 number one unit were replaced and the unit is now available for operation. The number three unit is unavailable for operation due to generator problems. The generator shuts down apparently without reason. Efforts continue to determine the cause of the generator problems.

Planned Work for December

- Arrival of tanks for storage of pond sludge.
- Continued acceleration in the sludge removal schedule is needed to meet DOE's challenge schedule to empty pond 207-B South.
- Modification to subcontracts will be made to incorporate the scope changes mandated by the dispute resolution.
- Continue pond closure planning. The ADM for the NEPA determination will be transmitted to DOE for a determination and closure alternatives will be evaluated.
- Begin IM/IRA technical consultation.
- Begin Phase II Work Plan.
- Obtain CDH approval for change to Interim Status.

Problems

A change to RCRA Interim Status is needed to support storage of sludge on the 750 Pad. The schedule is slipping because of ongoing requests for additional information from the State. Also, DOE does not agree with the State's request that coupons be used to monitor material compatibility in the tanks. While all the outstanding issues can be resolved to meet the commitment schedule, it is unlikely the change will be approved in time to meet DOE's challenge schedule,

which requires a 10-month acceleration over the commitment schedule.

In planning the closure of the ponds, disagreements have arisen between RFP and the regulators over disposition of the pond liners and soils from the north slope of the pond area. Progress on these issues appears to have stalled. If a satisfactory plan cannot be identified soon, IAG milestones following the draft IM/IRA DD could be jeopardized or additional funding would be required.

Open Items

Reprogramming of budgets to implement the dispute resolution is pending. Some impact on other Environmental Restoration (ER) projects is expected as funds are reallocated.

D&D of Building 788 must be funded and planned.

2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation of 10 IHSSs in the Woman Creek drainage: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified and are located, one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. Possible contamination in this operable unit was caused by landfill operations, storm-water runoff into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include nitrates, depleted uranium, metals, beryllium, solvents, pesticides, oils, paints, and cleaners. Media affected include soils, sediments, surface water, ground water, and air resuspension.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
	Submit Final Phase I RFI/RI Work Plan	30 Aug 91

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	30 Nov 93		09 Feb 95*
Submit Final Phase I RFI/RI Report	03 May 94		18 Oct 95*

* TBD due to HHRA issues work stoppage.

**November Work Activity
Status**

There has not been a resolution to the HHRA stop work order on data aggregation, selection of COC, and statistical comparisons for OU 5. The stop work order has caused TM #12, *Exposure Scenarios*, and TM #13, *Models*, to be delayed which has impacted HHRA schedules.

DOE received the comment/response sheets on TM #12, *Exposure Scenarios*, on November 22, 1993, and also received the draft TM #13, *Modeling*, on November 24, 1993. A milestone extension request that equals the time lost by the HHRA stop work order will be requested of the regulatory agencies.

Approximately 80-85 percent of the Phase I RI analytical data was returned to Rocky Flats Environmental Database System (RFEDS). Data management, aggregation of data, and statistical evaluation cannot begin until the database or subsets of the database are complete.

Sections of the Draft Phase I RFI/RI Report are in progress, including a summary of Field Investigations Activities, Geological Characterization, and the Nature and Extent section.

RFP Procurement awarded the modification to the subcontract for conducting an EM 61 - Time Domain Electromagnetic Geophysical Survey. The work will begin on January 3, 1994.

Drafts of Corrective Action Plans for programmatic issues/deficiencies noted in the DOE audit of OU 5 were finalized. The plans involve input from RFP groups to ensure that only valid and usable data are reported in final reports to the regulatory agencies.

Technical Memoranda

Project

OU 5-Woman Creek Priority Drainage Remedial Investigation

TM#1

TM Title

TM Status

Surface Water and Sediments

When preparation is concluded or is estimated to be concluded: 30 Nov 92

Projected date of submittal to EPA/CDH: 30 Nov 92

Actual date of submittal: 13 Oct 92

TM#2

TM Title

TM Status

Surface Geophysics

When preparation is concluded or is estimated to be concluded: 30 Nov 92

Projected date of submittal to EPA/CDH: 30 Nov 92

Actual date of submittal: 13 Oct 92

TM#3

TM Title

TM Status

Soil Sampling at IHSS 115

When preparation is concluded or is estimated to be concluded: 07 May 93

Projected date of submittal to EPA/CDH: 07 May 93

Actual date of submittal: 26 Jan 93

TM#4	Soil Sampling at IHSS 133
TM Title	When preparation is concluded or is estimated to be
TM Status	concluded: 07 Jun 93
	Projected date of submittal to EPA/CDH: 07 Jun 93
	Actual date of submittal: 12 Apr 93
TM#5	Soil Gas Sampling at IHSS 115
TM Title	When preparation is concluded or is estimated to be
TM Status	concluded: 07 May 93
	Projected date of submittal to EPA/CDH: 07 May 93
	Actual date of submittal: 25 Mar 93
TM#6	Cone Penetrometer at IHSS 115
TM Title	When preparation is concluded or is estimated to be
TM Status	concluded: 14 Apr 93
	Projected date of submittal to EPA/CDH: 14 Apr 93
	Actual date of submittal: 25 Mar 93
TM#7	Soil Borings at IHSS 133
TM Title	When preparation is concluded or is estimated to be
TM Status	concluded: 07 May 93
	Projected date of submittal to EPA/CDH: 07 May 93
	Actual date of submittal: 19 Feb 93
TM#8	Monitoring Wells at IHSS 115
TM Title	TM 8 has been canceled, and has been replaced by a
TM Status	letter outlining the justification behind the location of the
	wells in IHSS 115
TM#9	Monitoring Wells at IHSS 133, Ash Pits, Incinerator and
TM Title	Concrete Wash Pad
TM Status	When preparation is concluded or is estimated to be
	concluded: 14 May 93
	Projected date of submittal to EPA/CDH: 06 May 93
	Actual date of submittal: 06 May 93
	EPA/CDH comments scheduled: 11 Jun 93
	Actual date of submittal: 28 Jun 93
TM#10	Soil Borings at IHSS 209
TM Title	When preparation is concluded or is estimated to be
TM Status	concluded: 06 Mar 93
	Projected date of submittal to EPA/CDH: 06 Mar 93
	Actual date of submittal: 06 Mar 93

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TM #11	Contaminants of Concern
TM Title	To be scheduled in FY94
TM Status	
TM #12	Exposure Scenarios
TM Title	When preparation is concluded or is estimated to be concluded: 24 Nov 93
TM Status	Projected date of submittal to EPA/CDH: TBD
	Actual date of submittal: N/A
TM #13	Modeling
TM Title	When preparation is concluded or is estimated to be concluded: 12 Jan 94
TM Status	Projected date of submittal to EPA/CDH: 12 Jan 94
	Actual date of submittal: N/A
TM #14	Toxicity Assessment
TM Title	To be scheduled in FY94
TM Status	
Planned Work for December	<ul style="list-style-type: none">• Continue work on the RFEDS database.
Problems	None
Open Items	The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation.

2.6 OU 6 - WALNUT CREEK

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 21 IHSSs: A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSS 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165); the Old Outfall Area (IHSS 143). and the Soil Dump Area (IHSS 156.2).

Completion of field operations resulted in obtaining the following samples from the IHSSs in OU 6: stream sediment, pond sediment, surface soil, subsurface soil, surface and ground water.

Eleven new ground water monitoring wells, installed in OU 6 to supplement five existing wells, are being sampled each quarter for a minimum of 1 year. Geophysical surveys and radiation surveys were performed in selected areas to supplement the sampling activities.

The regulatory agencies have proposed a new IM/IRA on the operation of the RFP Ponds. If approved, this IM/IRA would affect the RFP pond water management, including OU 6, placing the water under CERCLA rather than the National Pollution Discharge Elimination System (NPDES).

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
	Submit Final Phase I RFI/RI Work Plan	16 Sep 91

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	4 Aug 94	10 Jun 94	21 Oct 94*
Submit Final Phase I RFI/RI Report	7 Jan 94	18 Nov 94	10 Jul 95*

* Completion date to be rescheduled due to HHRA issues work stoppage.

November Work Activity Status Sections of the Draft Phase I RFI/RI Report are in progress, including a summary of Field Investigations Activities, Geological Characterization, and the Nature and Extent section. The Draft Phase I RFI/RI Report

milestone delivery date is June 10, 1994; however because of the HHRA stop work order, a schedule extension will be requested.

TMs that guide the HHRA are in progress, but are affected by the stop work order. There has not been a resolution to the HHRA stop work order, on data aggregation, selection of COCs, and statistical comparisons. TM #1, *COC*, continues to be on hold; TM #2, *Exposure Scenarios*, and TM #3, *Models*, continue to be delayed.

The analytical database is complete, and approximately 85% validated. The subcontractor is involved with database management and clean up, preliminary histograms were produced (with aggregated data for the entire OU) for CLP metals.

Technical Memoranda

Project

OU 6-Walnut Creek

TM#1
TM Title
TM Status

Work Plan Modifications
Approved by EPA: 08 Jan 93

TM#2
TM Title
TM Status

Exposure Scenarios
When preparation is concluded or estimated to be concluded: 01 Feb 94
Projected date of submittal to EPA/CDH: 15 Feb 94
Actual date of submittal: TBD
Date when EPA/CDH comments received: N/A

TM#3
TM Title
TM Status

Modeling Surface and Ground Water
When preparation is concluded or is estimated to be concluded: 01 Jan 94
Projected date of submittal to EPA/CDH: 15 Jan 94
Actual date of submittal: TBD
Date when EPA/CDH comments received: N/A

TM#4
TM Title
TM Status

Contaminants of Concern
When preparation is concluded or is estimated to be concluded: 15 Mar 94
Projected date of submittal to EPA/CDH: 30 Mar 94
Actual date of submittal: N/A
Date when EPA/CDH comments received: N/A

TM#5

TM Title

TM Status

Toxicity Factors

When preparation is concluded or is estimated to be concluded: 15 Mar 94

Projected date of submittal to EPA/CDH: 30 Mar 94

Actual date of submittal: N/A

Date when EPA/CDH comments received: N/A

Planned Work for December

- Continue finalization of TMs #2 and #3.

Problems

Stop work order has prevented continued work to be accomplished on the TM #4, *COC* and delayed TM #2, *Exposure Scenarios*, and TM #3, *Modeling*.

Open Items

The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation.

2.7 OU 7 - PRESENT LANDFILL

The Present Landfill - OU 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill; consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
	Submit Final Phase I RFI/RI Work Plan	28 Aug 91

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	12 Oct 93		20 Dec 93*
Submit Final Phase I RFI/RI Report	16 Mar 94		02 Sep 94*
Submit Draft Phase II RFI/RI Work Plan	13 Sep 94		07 Aug 95*
Submit Draft Phase I Proposed IM/IRA DD	01 Nov 94		14 Feb 97*
Submit Final Phase II RFI/RI Work Plan	15 Feb 95		15 Apr 96*
Submit Final Phase I Proposed IM/IRA DD	06 Apr 95		16 Oct 97*
Submit IM/IRA Responsiveness Summary	14 Aug 95		14 May 98*...

*Completion date to be rescheduled due to HHRA issues work stoppage.

November Work Activity Status Negotiations with CDH and EPA continue relative to streamlining the IAG schedule for OU 7 by integrating the IM/IRA process with Phase I and II assessments. This will eliminate the Phase I RFI/RI Report and Phase II RFI/RI Work Plan and Report. The regulatory agencies support this effort. The modification to the subcontract supporting IM/IRA is projected to be awarded prior to the

end of December 1993. A detailed life cycle schedule is being developed for the landfill closure process.

Work continues on refining a strategy to assess risk at the landfill. A draft framework document was completed to form a baseline strategy and will be transmitted to the regulatory agencies. A meeting will be scheduled for December 1993 to redefine data quality objectives (DQOs) for OU 7.

Technical Memoranda

Project

OU 7 - Present Landfill

TM #1
TM Title
TM Status

Exposure Scenarios
Initial reviews completed by DOE/HQ and DOE. Review completed by EPA and CDH. Response summary developed and submitted to all parties for review. Reviews complete. Revised response summary completed 25 May 93, with a final review under way prior to transmittal to the agencies.

TM #2
TM Title
TM Status

Model Description
Transmitted to EPA and CDH for review: 08 Jan 93
Initial review by EPA, CDH, and DOE completed: 30 April 93
Draft response summary complete: 25 May 93

TM #3
TM Title

TM Status

Addendum to Final Phase I RFI/RI Work Plan. Surface Soil and Asbestos Pit Disposal Area Characterization Plan.
Transmitted to DOE for review: 05 Feb 93
Transmitted to the EPA and CDH for review: 08 Feb 93
Comments received: 26 Apr 93
Conditional approval by the EPA and CDH received: 22 Feb 93
Clarification of outstanding comments from EPA and CDH received: 03 May 93

TM #4
TM Title
TM Status

Contaminants of Concern
Under development

**Planned Work for
December**

- Continue to finalize the rescoping for OU 7.
- Award IM/IRA Subcontract.

Problems

An approved data aggregation methodology has not been finalized. Draft DOE proposals for data aggregation indicate potential cost and schedule impacts exist because of multiple risks assessments. The total number of risk assessments required for each OU will be negotiated with the regulatory agencies and based upon data aggregation criteria that may not be supported by current agency approved work plans.

Open Items

The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation and a methodology for comparisons of site specific data to background values.

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2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the Rocky Flats Plant. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings which potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants also varies widely between the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	01 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	01 Dec 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	14 Feb 94		02 Nov 15
Submit Final Phase I RFI/RI Report	12 Jul 94		19 Jul 16

November Work Activity Status DOE reviewed and commented on the Draft Phase I Data Summary for the Industrial Area (IA) Environmental Evaluation (EE) received by DOE on November 11, 1993. The bird observation survey addendum to the Phase I Data Summary and the Phase II Data Summary for the IA EE was completed in November 1993 and will be delivered to DOE for review and comment by December 10, 1993.

Technical Memoranda None

Planned Work for December • Continue the IA OU EE field work and complete the data summary reviews.

Problems None

Open Items None

2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This activity involves characterizing a series of tanks and associated process waste lines. The original process waste lines (OPWL) consisted of 35,000 feet of buried pipeline that transferred process wastes from production buildings to onsite treatment plants. A system of 60 designated pipe section, 46 storage tank sites, and 3 other areas of suspected process waste leakage are included in OU 9. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system were incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including medical decontamination fluids, miscellaneous laboratory liquids, and laundry effluent. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines that are accessible and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines, and by installing borings around the outdoor tanks. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
	Submit Final Phase I RFI/RI Work Plan	26 Nov 91

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	11 Apr 94		04 Jan 01
Submit Final Phase I RFI/RI Report	06 Sep 94		16 Sep 03
Submit Draft Phase II RFI/RI Work Plan	10 Mar 95		23 Jul 04
Submit Draft Phase I Proposed IM/IRA DD	01 May 95		31 Oct 03
Submit Final Phase II RFI/RI Work Plan	07 Aug 95		01 Apr 05
Submit Final Phase I Proposed IM/IRA DD	27 Sep 95		12 Jul 04

DOE, Rocky Flats Plant

November Work Activity Status

The preliminary draft OU 9 TM #1, *Field Sampling Plan, Part I, Outside Tanks*, was received by DOE on September 30, 1993. DOE comments are being incorporated. The issue of how to handle active tanks is currently being reviewed. DOE's position is that tanks located outside buildings are still active and should not be included in this field sampling TM. The tanks that fall under this category should be investigated when they are taken out of service. Tanks already identified as inactive are being rechecked to determine if they are still inactive and can be investigated.

A Process Improvement Team (PIT) was established to develop a strategy to disposition all tanks at the RFP. A branch on the flow diagram deals with tanks included in OU 9. The meeting held on November 15, 1993, discussed refinements to the flow diagrams and identification of specific issues that need to be addressed in the team's final report. On November 19, 1993, a working meeting was held to comment on the flow diagrams, correct logic discrepancies and make the diagrams more understandable for operations personnel.

Technical Memoranda

Project

OU 9-Original Process Waste Lines

TM #1
TM Title
TM Status

Field Sampling Plan - OPWL - Volume I - Tanks
When preparation is concluded or is estimated to be concluded: Jan 94
Projected date of submittal to EPA/CDH: Jan 94
Actual date of submittal: N/A
Date when EPA/CDH comments received: N/A

Planned Work for December

- Complete Final OU 9 TM #1.

Problems

None

Open Items

Issue of how to disposition active tanks in OU 9 TM #1.

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant, which consist of various hazardous waste units. Six of the IHSSs are located in the PA, two are located in the buffer zone near the present landfill, and the remaining IHSSs are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage to a utilization yard with waste spills. A Final Phase I RFI/RI Work Plan is currently in preparation. The primary components of the RFI/RI Work Plan for OU 10 will be an FSP, Baseline Risk Assessment Plan (BRAP) and an EE Work Plan.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	27 Nov 91
	Submit Final Phase I RFI/RI Work Plan	01 May 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	25 Aug 94		02 Nov 15
Submit Final Phase I RFI/RI Report	30 Jan 95		19 Jul 16
Submit Draft Phase I Proposed IM/IRA DD	26 May 95		26 Feb 18
Submit Draft Phase II RFI/RI Work Plan	27 Jun 95		25 May 17

November Work Activity Status All field work for OU 10 was suspended until comments on the IA HSP are resolved. It is anticipated that the date for initiating field work will be December 8, 1993.

The high purity germanium detector (HPGe) gamma survey in IHSS 176, inside the Protected Area (PA), was completed. Initial evaluation of the spectral data indicates the presence of extremely low levels of activity for uranium and americium. Additional data points are being collected in the PA for other IA OUs.

IHSS 170/174 and 176 Waste Remove Update - A resolution of responsibility for the removal of materials from the IHSSs continues to be discussed. To date, a decision has not been made regarding this issue. Until this issue is resolved, no efforts will be made to begin work on removing all materials found in or around IHSSs 170/174 and 176. However, work will proceed in areas

where material storage will not adversely affect data collection activities.

Technical Memoranda

No TMs have been developed for OU 10. The first TM for OU 10 will be for the nonintrusive field work, tentatively scheduled to be completed in March 1994.

Planned Work for December

- Complete surficial soil sampling in OU 10, IHSS 170/174.
- Begin surficial soil sampling in IHSSs: 175, 176 and 210.

Problems

Characterization and assessment of IHSSs in OUs 9, 10, and 15 represent significant problems until materials stored in the IHSSs are removed so the IHSSs can be assessed.

Efforts are still unresolved to either transfer IHSSs 213 (904 storage pad) and 214 (750 storage pad) to OU 4 or the RFP Permit modification.

Open Items

None

2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the Rocky Flats Plant buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207-B North and Center (contaminated ground water in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and ground water.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work plan	08 Jun 90
	Submit Final Phase I RFI/RI Work plan	02 Jan 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	20 Sep 94		18 Apr 95
Submit Final Phase I RFI/RI Report	22 Feb 95		03 Jan 96
Submit Draft Phase II RFI/RI Work Plan	21 Aug 95		25 Nov 96

November Work Activity Status Work on the ecological Risk Assessment EE is ongoing.

Bids are being prepared for a subcontract to perform the combined Phases RFI/RI field work and report writing.

DOE is reviewing preliminary comment responses to the revised FSP.

Technical Memoranda

Project **OU 11 - West Spray Field**

TM #1
TM Title Revised Field Sampling Plan and Data Quality Objectives.

TM Status Under development
HHRA Technical Memoranda is scheduled to begin in FY94

DOE, Rocky Flats Plant

**Planned Work for
December**

- Deliver TM #1, *Revised FSP and Data Quality Objectives (DQO)*, to the regulatory agencies.

Problems

- A concern exists that the TM #1, *Revised FSP and DQO*, will not receive regulatory agencies' approval in time to meet the February 15, 1994, scheduled start of field work.

Open Items

None

2.12 OU 12 - 400/800 AREA

The 400/800 Area involves assessment and remediation of the 10 IHSSs at the 400/800 Area: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - north, east, south, and west of Building 460 (IHSSs 136.1, and 136.2); Building 881 - Conversion Site(147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and a HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. A Phase II Investigation may be performed as necessary. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision (ROD), release to the public, and implementation of the plan.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work plan	08 May 92
	Submit Final Phase I RFI/RI Work plan	05 Oct 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	20 Apr 94		11 Mar 99
Submit Final Phase I RFI/RI Report	15 Sep 94		17 Nov 99

November Work Activity Status

According to the integrated approach to field work among the IA OUs, OU 12 soil gas surveys are planned to begin after OU 10 is completed; surficial soil sampling is scheduled to be conducted in the same manner. The Readiness Review is scheduled for December 5, 1993, with field work anticipated to begin on December 8, 1993. Therefore, field work for OU 12 will not begin until after December 8, 1993.

DOE, Rocky Flats Plant

Technical Memoranda

The first TM scheduled for OU 12 is the nonintrusive TM, due in April 1993.

Planned Work for December

- Begin staking locations for surficial soil sampling.
- Evaluate additional HPGe Spectral data.

Problems

- Similar to other IA OUs, waste storage will affect certain field activities in OU 12.

Open Items

None

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of 14 IHSSs: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); and the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197).

Assessment will consist of preparing a Phase I RFI/RI Work plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. A FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work plan	15 May 92
	Submit Final Phase I RFI/RI Work plan	12 Oct 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplish Date</u>
Submit Draft Phase I RFI/RI Report	8 Aug 94		24 Mar 99
Submit Final Phase I RFI/RI Report	11 Jan 95		02 Dec 99

November Work Activity Status A draft letter report/sampling plan for CDH and EPA approval was drafted.

Final Draft of the Compendium of in situ radiological methods and applications was concurrently reviewed by DOE and RFP. DOE commented on this report and these comments were incorporated into the final document.

DOE, Rocky Flats Plant

Technical Memoranda

The current FYP indicates TM #1, *Human Health Risk Assessment-Exposure Assessment*, and TM #2, *Human Health Risk Assessment-Modeling*, are scheduled for completion in 1994. These tasks will require rescheduling due to the integration of OUs 8, 9, 10, 12, 13, and 14. Currently, only nonintrusive RI field work is scheduled for OU 13 in FY94. Preparation of the TMs will not begin until FY95.

A nonintrusive TM will be prepared in FY94 summarizing the nonintrusive field work and recommending Stage II activities for the remedial investigation intrusive field work.

Planned Work for December

- Continue work on the integrated field sampling plan.
- Begin integrated field sampling, surficial soils.

Problems

None

Open Items

SOPs need to be issued as controlled documents

2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this work plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and feasibility study of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	26 Jun 92
	Submit Final Phase I RFI/RI Work Plan	19 Oct 92

Future IAG Milestones Through FY95 None

November Work Activity Status Work continues on OU 14 background issues. RFP personnel are meeting with RCRA personnel to get maps and other information about the RCRA materials permitted for storage in OU 14 IHSSs.

Technical Memoranda Current plans indicate TM #1, *Human Health Risk Assessment-Exposure Assessment*, and TM #2, *Human Health Risk Assessment-Modeling*, are scheduled for completion in March 1994. These tasks will require rescheduling due to the integration of OUs 8, 9, 10, 12, 13, and 14. Currently, only nonintrusive

RI field work is scheduled for OU 14 in FY94.
Preparation of the TMs will not begin until FY95.

A nonintrusive TM will be prepared in FY94 summarizing the nonintrusive field work and recommending Stage II activities for the remedial investigation intrusive field work.

**Planned Work for
December**

- Continue to work on the integrated field sampling plan.
- Conduct ORR for the integrated OUs.

Problems

None

Open Items

None

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is composed of seven IHSSs: IHSS 178, Building 881 - Drum Storage Area; IHSS 179, Building 865 - Drum Storage Area; IHSS 180, Building 883 - Drum Storage Area; IHSS 204, RCRA Unit 45 - Original Uranium Chip Roaster; IHSS 211, RCRA Unit 26, Building 881 - Drum Storage Area; IHSS 212, RCRA Unit 63, Building 374 Drum Storage Area; and IHSS 217, RCRA Unit 32, Building 881 - Cyanide Bench Scale Treatment. The seven IHSSs currently have interim status under RCRA.

Closure Plans for the IHSSs were submitted to CDH during 1988 and 1989. The IHSSs were also included within the IAG to undergo a RCRA Facility Investigation/Remedial Investigation (RFI/RI). During scoping meetings for preparation of the Phase I RFI/RI Work Plan for Operable Unit 15 conducted between EPA, CDH and DOE during April 1992, the Closure Plan and RFI/RI Processes were combined. In affect, Clean Closure Performance Standard (6 CCR 1007-3, Part 265.111) will serve as the Applicable or Relevant and Appropriate Requirements for the OU 15 RFI/RI inside buildings and Closure Plans will no longer be prepared. The public comment period required for the Closure Plan process will be fulfilled through the IM/IRA process of the IAG.

Drums containing solids and liquids were stored at the OU 15 IHSSs. Types of waste stored in drums included oils, coolants and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes) and waste paints and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium. Since only one release has been documented in an OU 15 IHSS, the effort is to determine if contamination is present. The major activity proposed is characterization of contamination associated with the OU 15 IHSSs both inside and outside buildings and, if applicable, decontamination of the concrete floors at the indoor facilities and remediation of contamination outside buildings.

During April 1992, IHSS 215, Unit 55.13-Tank T-40, was deleted from OU 15 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992. Similarly, IHSS 212, RCRA Unit 63 was removed from the OU 15 RFI/RI process since it is currently active as a Drum Storage Area and has been included in the Rocky Flats Plant RCRA Part B TRU Mixed Waste permit application.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishment	Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
	Submit Final Phase I RFI/RI Work Plan	26 Oct 92

DOE, Rocky Flats Plant

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	1 Aug 94		1 Aug 94
Submit Final Phase I RFI/RI Report	04 Jan 95		04 Jan 95

**November Work Activity
Status**

Completion of Stage I and II field work inside Building 447, IHSS 204 was delayed because of an equipment failure that occurred on November 4, 1993. However, OU 15 field work was completed on November 9, 1993. Chemical analysis will be completed during December 1993 and should be available by December 23, 1993, for evaluation. DOE will receive a chemical analysis status Report by December 21, 1993.

Negotiations regarding the subcontract modification for delays to OU 15 field work inside buildings were conducted on November 18, 1993, and subcontract modifications were completed as a result of those negotiations.

Preparation of the Phase I RFI/RI Work Plan for TM #1, FSP, continues. Available chemical analysis data (not validated) is being obtained and evaluated.

Technical Memoranda

Project

OU 15 - Inside Building Closure

TM #1
TM Title
TM Status

Field Sampling Plan (FSP)
When preparation is concluded or is estimated to be concluded:
Projected date of submittal to EPA/CDH: 22 Feb 93
Actual date of submittal:
Date when comments were received:

TM #2
TM Title
TM Status

Human Health and Risk Assessment (HHRA)
When preparation is concluded or is estimated to be concluded:
Projected date of submittal to EPA/CDH:
Actual date of submittal:
Date when comments were received:

Planned Work for December

Project Status

- Complete the annotated outline of TM #1, *FSP*, for review, discussion and concurrence by the regulatory agencies.
- Sections one and two of TM #1, *FSP*, are scheduled for completion by December 22, 1993.

Problems

None

Open Items

None

2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a No Further Action Justification Document (NFAJD) for seven IHSSs: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks (400 and 700 Areas), Nickel Carbonyl Disposal, Water Treatment Plant Backwash Pond, and Scrap Metal Sites. The NFAJD was approved by the regulatory agencies.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishments	Submit Draft No Further Action	
	Justification Document	04 Mar 92
	Submit Final No Further Action	
	Justification Document	30 July 92
	Submit Revised Final NFAJ Document	16 Oct 92

**Future IAG Milestones
Through FY95** None

**November Work Activity
Status**

A preferred alternative was announced to address OU 16. The preferred remedy for the soils is the "No Action" alternative for IHSSs 185, 192, 193, 194, 195 within OU 16. These hazardous sites currently present no risk to human health and the environment. Past cleanup actions or natural processes have eliminated the hazardous substances. However, previous cleanup actions and natural processes may not have eliminated the hazardous substances for IHSSs 196 and 197 within OU 16. Therefore, IHSSs 196 and 197 will be transferred for further investigation into OU 5 and OU 13, respectively.

A Public Comment period for the Proposed Plan/Draft Modification of Colorado Hazardous Waste Permit for RFP OU 16: Low Priority Sites started November 8, 1993, and will end January 7, 1994. A "dry run" of the OU 16 Public Hearing was held on November 19, 1993, and was attended by the regulatory agencies, DOE and RFP Personnel. A Public Hearing will be held at the Denver West Marriott from 9:00 p.m. on December 8, 1993.

DOE, Rocky Flats Plant

Technical Memoranda

None

**Planned Work for
December**

- Public Hearings for the PP on December 8, 1993.

Problems

None

Open Items

None

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1994.

2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP environmental restoration activities in general. The activities include, but are not limited to, the HSP, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishments	Submit Draft Background Study Report (Water)	15 Dec 89
	Submit Draft Background Study Report (Soils)	15 Dec 89
	Submit Draft Community Survey Plan	23 Jan 90
	Submit Final Community Survey Plan	22 Mar 90
	Submit Draft Health and Safety Plan	15 Aug 90
	Submit Draft Quality Assurance Project Plan	29 Aug 90
	Submit Draft Standard Operating Procedures	29 Aug 90
	Submit Draft Plan for Prevention of Contaminant Dispersion	19 Sep 90
	Submit Draft Treatability Study Plan	21 Sep 90
	Submit Draft Community Relations Plan	01 Nov 90
	Submit Final Health and Safety Plan	12 Nov 90
	Submit Revised Background Study Report	21 Dec 90
	Submit Final Community Relations Plan	22 Jan 91
	Submit Final Quality Assurance Project Plan	01 Mar 91
	Submit Final Standard Operating Procedures	01 Mar 91
	Submit Draft Radionuclides Discharge Limits Plan	05 Apr 91
	Submit Community Relations Plan Responsiveness Summary	21 Jun 91
	Submit Final Treatability Study Plan	03 Jun 91
	Submit Final Plan for Prevention of Contaminant Dispersion	22 Jul 91

Submit Final Plan Discharge Limits Radionuclides	16 Sep 91
Submit Final PPCD and Responsiveness Summary	25 Nov 91
Submit Draft Historical Release Report	08 Jan 92
Submit Responsiveness Summary for DLRP	31 Jan 92
Submit Final Historical Release Report	03 Jun 92
Submit Annual Treatability Study Report	08 Mar 93

**Future IAG Milestones
Through FY95**

None

**November Work Activity
Status**

Sitewide Activities

Sitewide Treatability Studies

EPA SITE Demonstration of the Colloid Filter

Polishing Method Technology - A poster dealing with the EPA SITE demonstration of the Colloid Filter Polishing Method Technology at RFP was presented at the Fifth Annual Technical Information Exchange (TIE) Workshop held November 16 and 17, 1993.

Solar Detoxification - A meeting was held at the OU 1 site on November 19, 1993, between DOE and RFP to review the site as a possible location for field testing of the solar detoxification equipment. As the result of the valuation, the site appeared to be acceptable for the proposed test work.

Bioremediation - Several projects will be tested. These projects include composting of chlorinated solvent contaminated soils and bioadsorption of radionuclides. Environmental Technology is preparing the laboratory space for the bioremediation studies to begin.

A meeting was held on November 5, 1993, among DOE, Los Alamos National Laboratories (LANL), RFP and local universities interested in working on bioremediation at RFP. All of the group's interests and involvement were discussed at the meeting, and some preliminary plans were laid out to fund some bioremediation work through the local universities.

Magnetic Separation - The revised Los Alamos Technical Office (LATO) proposal was received on November 18, 1993, from the subcontract administrator (SA). The proposal was reviewed and approved by the

contract technical representative (CTR) on November 19, 1993. DOE will receive the package from RFP Procurement and it should take 2 to 3 weeks to go through the approval process. The contract is scheduled to be awarded in January 1994.

Ion Exchange and Adsorption - Ion Exchange and Adsorption are two of the technologies identified in the Final Sitewide Treatability Plan. The Ion Exchange and Adsorption activity was placed on hold, pending resolution of field sampling issues.

Administrative Record - The Quarterly updates of the Administrative Record (AR) Index was delivered to the four public repositories on November 17, 1993. The microfiche copies of the AR File for all OUs were made on November 24, 1993. The next scheduled update of the public repositories is February 25, 1994.

The four public repositories were sent the updated OU 16 AR File to ensure that these records were available to the public during the public comment period from November 8, 1993 through January 7, 1994 .

Community Relations - The Community Relations Plan is being updated. The current scheduled date for the draft revised plan is in January 1994.

Work continues on the Technical Review Group (TRG) Meeting scheduled for December 6, 1993. The topic to be discussed is the comment resolution process.

Other Sitewide Operations

Integrated Operable Units - OUs 8, 9, 10, 12, 13, and 14 - The Readiness Review (RR) activity descriptions were completed and delivered to RFP Environmental Restoration Management (ERM). RFP ERM requested that the RR checklists and the RR meeting be held on December 3, 1993. If the December 3, 1993, date is met, the subcontractor will begin field sampling on December 8, 1993.

Industrial Area (IA) Interim Measures/Interim Remedial Action Plan (IM/IRAP) - A meeting was held to resolve ground water modeling, risk assessment, project status update, and changes in scope brought about by the further refinement of the project objectives. A contract modification will be initiated to allow additional D&D

monitoring issues to be addressed, and to allow the project to include an overview of spill response capabilities for the IA.

Work is continuing on development of generic IM/IRA language to facilitate implementation of the Strategic Plan. Weekly meetings are under way and an activity scoping document is being produced.

Decontamination & Decommissioning (D&D) - Phase I of the development of the D&D Program Guidance Document is complete. RFP Transition Management is preparing a schedule and cost to perform pre-task planning for the D&D of Building 788.

Planned Work for December

- Continue updates on AR.
- Continue Community Relations activities.

Problems

None

Open Items

None

SECTION 3. ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the Environmental Management Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe fieldwork and to obtain split or duplicate samples.

3.1 SURFACE WATER AND SEDIMENTS

- Each of the Surface Water Stations (approximately 20 stations) are sampled quarterly.
- Each of the Sediment Stations (approximately 10 stations) are sampled quarterly.
- Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOA	Radionuclides
Metals CLP TAL & Non-TAL	Temperature
Field Parameters	TDS/TSS
Specific Conductivity	pH
Dissolved Oxygen (DO)	Nutrients
Major Anions	

- Additionally, sediment samples are analyzed for: CLP-Semi VOAs, CLP-Pesticides/PCBs
Herbicides-619

3.2 SOILS

- Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) are sampled annually.
- Each soil sample is analyzed for plutonium and americium.

3.3 GROUND WATER

A total of 410 Ground water Stations are sampled quarterly; this includes alluvial wells and bedrock wells. Approximately one third of the wells are monitored monthly for water levels. Each ground water sample is analyzed for the following parameters:

Radiochemical Parameters

Gross Alpha
Gross Beta
Plutonium
Americium
Strontium
Tritium
Uranium
Cesium

Inorganic Parameters

Nitrate/Nitrite
Total Phosphorous
Ortho-Phosphate
Ammonia
TDS
Chlorine
Fluorine
Sulfate
Carbonate
Bicarbonate
TSS
Dissolved CLP & additional metals
Cyanide
CLP Volatile Organic Constituents

Field Parameters

Specific Conductance
Temperature
Turbidity
pH

SECTION 4. CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the RFP ER Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
1	Assessment	Ebasco	Dames & Moore	CMS/FS Report	Jan 92
1	Assessment	Dames & Moore		Public Health Evaluation	Apr 93
1	Assessment	Roy F. Weston		Revise RI Report, respond to agency comments	Feb 93
1	Assessment	S.M. Stoller		Environmental Evaluation	Apr 93
1	Remediation	Resource Tech.		B-891 Treatment System Operations Group, Inc. (RTG)	
2	Assessment	Woodward-Clyde		OU 2 RF/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Ebasco	S.M. Stoller	Environmental Evaluation	Feb 91
	Assessment	Woodward-Clyde	Layne	OU 2 RF/RI Work Plan (bedrock), surficial soils	Mar 93
2	Remediation (RFG in April)	Reidel		Installation and operation of the water treatment system for South Walnut Creek Phase of OU 2 IRA	Jan 91
3	Assessment	IT Corporation	CH2M Hill	OU 3 Field Work and RI Report	Apr 92
3	Assessment	MRI		Wind Tunnel/Soil Resuspension Study	Aug 92
4	Remediation	HNUS	Halliburton Spec. Services	Demobilize	Sep 91
4	Assessment	Parsons/Eng Science	Rust I&E	Implement the Phase I RF/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92
4	Remediation Science	Parsons/ Eng		Development of IM/IRA DD & conceptual design	
4	Remediation	ERM-Rocky Mountain	Geraghty & Miller	Post-closure monitoring plan	Nov 93
5	Assessment	ASI Blackhawk Geo Walsh & Assoc. Layne Envir. Service Utility Mgmt. Service S.M. Stoller Adv. Terra Testing	Dames & Moore Plan (excluding EE)	Implementation of OU 5 Work	Jun 92

DOE, Rocky Flats Plant

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
5	Assessment	S.M. Stoller		Implementation of EE section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward-Clyde	Lane, Ogden, Geo Environmental	OU 6 RFI/RI Work Plan and Quality Assurance Addendum	Aug 92
6	Assessment	S.M. Stoller		Implementation of EE section of OU 6 Work Plan	Sep 92
7	Assessment	S.M. Stoller	Walsh & Assoc.	OU 7 RFI/RI Work Plan Implementation including EE Plan and QA Addendum	Nov 92
8	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
9	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
10	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
12	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
13	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
14	Assessment	Jacobs Eng.		(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
15	Assessment	ERM-Rocky Mtn.	G.S. Miller, Inc.	Implementation of the RFI/RI Work Plan	Mar 93
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct 90
SW	Geo. Char.	Jacobs Eng.		Well Abandonment and Replacement	Mar 93
SW	Geo. Char.	Colorado State University		Support M.S. thesis of Structural Geology, of Front Range Area Near RFP	Nov 91
SW	Geo. Char.	S.M. Stoller		Prepare 1992 Annual RCRA Report and Addendum	Jan 93
SW	Geo. Char.	Colorado School of Mines		Masters level training program in ES and Engineering	Aug 92
SW	Geo. Char.	Woodward-Clyde		Support for the SSWMS	Feb 93

Contractor/Subcontractor Identification

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
SW	Geo. Char.	Colorado State University		Sequential Extraction	April 92
SW	Geo. Char.	University of Colorado		Soil Monitoring Vadose Zone	Jun 92
SW	Geo. Char.	S.M. Stoller		Spatial Analysis/Computer Support	Mar 93
SW	Geo. Char.	Woodward Clyde	SAIC/Wright Water		Jan 93
SW	Monitoring	IT Corporation		Analytical Services for ground water, surface water, and sediment	Jul 90
SW	QA	SAIC		Develop and implement QA program and field operations oversight	Dec 90
PM	Support	S.M. Stoller		Program Management Support	Oct 92
PM	QA Support	SAIC		Provide QA/QC support to ER Program	Nov 92

Acronyms

ADS	Activity Data Sheet
AIP	Agreement In Principle
ALARA	As Low As Reasonably Attainable
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
ASRP	Accelerated Sludge Removal Project
BAT	Best Available Technology
BCP	Baseline Change Proposal
BOA	Basic Ordering Agreement
BRAP	Baseline Risk Assessment Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
CMS	Corrective Measures Study
COC	Contaminant Of Concern
CPT	Cone Penetrometer Testing
CRP	Community Relations Plan
CSU	Colorado State University
DAC	Derived Air Concentration
DD	Decision Document
D&D	Decontamination & Decommissioning
DCN	Document Change Notice
DLRP	Discharge Limits Radionuclides Plan
DOE	Department of Energy
DQO	Data Quality Objectives
DVP	Data Validation Plan
E&WM	Environmental and Waste Management
EA	Environmental Assessment
EE	Environmental Evaluation
EM	Environmental Management
END	Environmental NEPA Division
EPA	Environmental Protection Agency
EQS	Environmental Quality Support
ER	Environmental Restoration
ERA	Ecological Risk Assessment
ESE	Environmental Science and Engineering
FIDLER	Field Instrument for Detection of Low Energy Radiation
FS	Feasibility Study
FSP	Field Sampling Plan
FTU	Field Treatability Unit
FYP	Five-Year Plan
GAC	Granular Activated Carbon
GIS	Geographic Information System

GPR	Ground Penetrating Radar
H&S	Health and Safety
HSP	Health and Safety Plan
HAP	Health Advisory Panel
HGMS	High Gradient Magnetic Separation
HHRA	Human Health Risk Assessment
HPGe	High Purity Germanium
HRR	Historical Release Report
IA	Industrial Area
IAG	Interagency Agreement
ICP-MS	Inductively Coupled Plasma Mass Spectrometer
IDM	Investigative Derived Material
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
ITS	Interceptor Trench System
IWCP	Integrated Work Control Package
IX	Ion Exchange
LANL	Los Alamos National Laboratory
LATO	Los Alamos Technology Office
LL	Low-level
LLMW	Low-level Mixed Waste
MOU	Memorandum of Understanding
MTS	Master Task Subcontract
MSVEU	Mobile Soil Vapor Extraction Unit
NAPLs	Non-Aqueous Phase Liquids
NEPA	National Environmental Policy Act
NFAJ	No Further Action Justification
NTS	Nevada Test Site
O&M	Operations and Management
OPWL	Original Process Waste Line
ORR	Operational Readiness Review
OTD	Office of Technology Development
OU	Operable Unit
PA	Protected Area
ppb	Parts per billion
PCCB	Plant Change Control Board
PCP	Process Control Plan
PAC	Potential Area of Concern
PIT	Process Improvement Team
PP	Proposed Plan
PPCD	Plan for Prevention of Contaminant Dispersion
PPE	Personal Protective Equipment
PU&D	Property Utilization and Disposal
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QP	Quality Plan
RAGS	Risk Assessment Guidance for Superfund

RCA	Radiological Control Area
RCRA	Resource Conservation and Recovery Act
RFEDS	Rocky Flats Environmental Database System
RFI	RCRA Facilities Investigation
RFP	Rocky Flats Plant
RI	Remedial Investigation
ROD	Record of Decision
RPT	Radiological Protection Technician
SAR	Safety Analysis Report
SID	South Interceptor Ditch
SMO	Sample Management Office
SOP	Standard Operating Procedure
SOW	Statement of Work
SPPO	Solar Ponds Program Office
STP	Sewage Treatment Plant
SW	Surface Water
TCE	Trichloroethene <i>ethylene</i>
TDS	Total Dissolved Solids
TIE	Technology Information in Exchange
TM	Technical Memorandum
TRG	Technical Review Group
TSR	Treatability Study Report
TSS	Total Suspended Solids
UBC	Under Building Contaminations
USFWS	United States Fish and Wildlife Service
UV	Ultraviolet
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure
WS	Waste Solidification